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Directorate of Strategic Finance and Costing



Costing Handbook

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Canada 

PREFACE

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The Costing Handbook is a publication designed to assist departmental personnel at all levels in the development and analysis of comprehensive business cases and cost estimates. Although the use of this handbook is not mandatory, it is highly recommended that it be used in conjunction with the Cost Factors Manual, the Economic Model and the Project Approval Guide (PAG), as required.

The second edition of the handbook is based on user feedback received from the first edition and on military costing handbooks from other countries. Chapter 11 is a completely new chapter, which explains the Costing Validation Process. The intent is to continually enhance this Handbook as costing methodologies evolve and change. Your comments, on either the form or content, would be most appreciated and should be directed to:

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<u>Preface</u>	ii
<u>Table of Contents</u>	iii
<u>Introduction</u>	vi

Chapter 1: Introduction to Cost Analysis

- General
- Purpose
- Handbook Layout
- Cost Analysis – An Overview
- Defence Planning and Management
- The RMA and Cost-Effectiveness
- Strategy 2020 and Affordability
- Cost Analysis Requirements, Uses and Limitations
- The Basics

Chapter 2: Types of Cost Applications

- General
- Key Terms Used
- Resource Tradeoffs
- Make or Buy Decisions
- Activity-Based Costing (ABC)
- Cost-Benefit Analysis (CBA)
- Constant and Budget Year Dollars
- Discounted Cash Flow
- Pay Back Period
- Rate of Return on Investment (ROI)
- Cost Recovery
- Summary

Chapter 3: The Costing Process – An Overview

- General
- The Analytical Approach
- Quick Reference Guide to the Costing Process

Chapter 4: Defining the Requirement

- General
- Interviews
- Methodology Development
- Confirm Expected Results
- Assumptions

Chapter 5: Categorizing Resource Costs

- General
- Key Terms Used
- Types of Cost
- Personnel Costs
- Equipment Costs
- Facility Costs
- Life Cycle Costs
- Cost Structure Development
 - Work Breakdown Structure (WBS)
 - Cost Element Structure

Chapter 6: Gathering Data

- General
- Steps in Data Collection
- Data Sources at a Glance
- Quick References
- Featured Data Sources

Chapter 7: Estimating Costs

- General
- Key Terms Used
- Cost Estimating Methods
- Cost Estimating Considerations
- Cost Allocation
- Statistics for Cost Estimating
- Typical Errors
- Summary
- Regression Analysis Example

Chapter 8: Assessing Risk and Reasonableness

- General
- Risk and Uncertainty
- Point Estimate vs Interval Estimate
- Budgeting Challenges
- The DND Risk Environment
- Risk Components
- Requirement for Risk Management and Assessment
- Approaches for Estimating Cost Risk and Reasonableness

Chapter 9: Option Selection

- General
- Ranking by Qualitative Issues and Risks
- Risk Dimension
- Ranking by Quantitative Analysis
- Ranking by Other Considerations
- Overall Option Selection

Chapter 10: Business Case Analysis

- General
- Background
- Definition
- Principles
- A Business Case Methodology
- Suggested Business Case Written Report Format

Chapter 11: Costing Validation Process

- Introduction
- Background
- Intent of the Strategic Cost Validation
- Fundamental Difference between Project focus and DSFC focus
- Strategic Cost Validation Methodology
- Project interaction with DSFC

Order Form

Introduction

As resources are limited, especially when defined in dollar terms, resource allocation decisions must be effective and efficient. A thorough understanding of all proposed resource allocation options is paramount to the success of DND/CF missions and objectives. The best way to achieve a complete, reasonable and convincing proposal is through a rigorous development and review of its cost estimate. This Costing Handbook has been developed to help managers, project staff and cost analysts fulfil this goal.

Costing - Estimates Development and Analysis

Cost estimates can be defined as a management tool used to help decision makers evaluate resource requirements at key project milestones and decision points in the acquisition process. Preparation of the cost estimates includes:

- a. identifying all assumptions, ground rules, and constraints affecting the proposal;
- b. developing, estimating, and documenting costs using analytical approaches and techniques; and
- c. identifying and estimating incremental and total resources required to support past, present, and future forces, units, systems, functions, and equipment.

A cost estimate is an integral step in the selection between alternatives by a decision maker.

The Analytical Approach

An analytically sound methodology and a systematic approach are the keys to developing reliable and valid cost estimates. The critical steps to such estimates are as follows:

1. **Define the Project Scope.** At the beginning of each cost estimate, the scope of the problem or issue must be determined. This definition, including the ground rules, constraints, and assumptions, provides the basis for the cost estimate;
2. **Generate Options.** The number of viable options, sub-options, and mix of categories will depend on the scope of the examined proposal and its confirmed constraints. A viable option must relate back to the level of quality and service or activity required by the proposal. Generating options can be one of the hardest steps because it requires removing biases favouring existing practices, procedures and guidelines by creatively thinking of new fresh ideas and options. Undergoing initial discussions with the stakeholders to get their opinions can refine the options.
3. **Select the cost structure.** A well-developed cost structure ensures that a proposal is completely costed and eliminates double counting. Each viable option must

have a cost structure. A cost structure starts by systematically listing the tasks to be performed to achieve the proposed mission or objective and then grouping these tasks into cost elements. Combining the Work Breakdown Structure (WBS) and the Cost Element Structure (CES) ensures that all related costs have been considered appropriately.

4. **Compile data sources.** The process of identifying appropriate data sources for each viable option is a critical step towards completing successful estimates. Data in the form of cost, technical, and programmatic information serve as the basis for the estimates. Data takes many forms, such as historical contractor cost reports, Government contracts, cost/technical databases, data from previous estimates, etc. Data can also range from being Rough Order Magnitude (ROM) to being substantive. Selecting appropriate data for the task requires sound analytical judgment. Historical data must be analysed to verify comparability between the current project and previous or similar projects. Also, all anomalies in the data must be identified and addressed and adjusted for inflationary effects and quantity differences, as necessary.
5. **Prepare the cost estimate.** The primary purpose of cost estimates is to translate resource requirements into estimated dollars. There is no ultimate technique or method when determining costs. The approach must be logical and objective and the costs must be reasonable, valid, relevant, and verifiable. Multiple approaches should be used, the use of one or more approaches varies with the amount and reliability of available data.
6. **Assess risk and reasonableness.** A crucial step in performing a detailed option analysis is to conduct a risk assessment. While it is often qualitative and subjective in nature, there are quantitative approaches and methods available to assess risk. Risk assessment may create a risk-adjustment to the cost estimate that may be different from the initial estimate. The final estimates must address the reasonableness of the initial costing and include appropriate mitigation and contingency for the risk.
7. **Select the best option.** Identifying the best option requires a delicate balancing of the qualitative factors, quantitative results, and the elements of risk. All decision criteria need to be weighted and applied to the proposed options. The objective is to place all options in a relative order of merit, which can then be combined, with the results of the cost analysis to determine the most cost-effective option.
8. **Prepare documentation.** All steps in the development of a cost estimate, including definition, ground rules, constraints and assumptions, must be documented. The source of all data, the processes used to prepare the estimates, and the rationale for that selection must be clearly identified. The documentation must provide sufficient detail so another person could track the cost-estimating process (audit trail) from definition to conclusion.

9. **Validate the documentation.** The validation by an independent team includes a thorough analysis of problem definition, assumptions, options, cost estimate, benefit analysis (as necessary), risks, sensitivity analysis, conclusions, and recommendations. The review of source data and analytical methodology employed is of particular importance since this is a challenge function. Chapter 11 details the validation process.

The Figure below depicts the general costs analysis methodology:

Cost Analysis Methodology

